

No. 23-1091

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA

CONSUMERS' RESEARCH, ET AL.,
Petitioners,

v.

FEDERAL COMMUNICATIONS COMMISSION, ET AL.,
Respondents.

On Petition for Review of an Order of
the FCC; FCC-DA-23-216

**AMICUS CURIAE BRIEF OF ACADEMY AND EMERITUS
PROFESSOR OF TELECOMMUNICATIONS AND LAW
ROBERT FRIEDEN IN SUPPORT OF RESPONDENTS**

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**CERTIFICATE AS TO PARTIES, RULINGS,
AND RELATED CASES**

All parties, intervenors, and amici appearing in this court; all rulings under review; and all related cases are listed in the Initial Brief for Petitioners (Doc. #2012628).

/s/ Eric P. Gotting

CERTIFICATE AS TO CIRCUIT RULE 29(d)

Professor Frieden's amicus brief traces the history and purposes of universal service in the United States, examines the technological and market forces underlying changes in universal service, and discusses the advantages of relying on a non-governmental agency to administer universal service programs. While several other amicus briefs were filed in support of Respondents in similar cases pending in the Fifth, Sixth, and Eleventh Circuits, none of those focused on the historical underpinnings of universal service or the broad application in the United States and across the globe of universal service principles. Given the differences in focus among such amici, it would be impracticable to file a joint amici brief.

/s/ Eric P. Gotting

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GLOSSARY

FCC Federal Communications Commission

ITU International Telecommunication Union

USAC Universal Service Administrative Company

USF Universal Service Fund

INTEREST OF AMICUS CURIAE¹

Amicus Robert Frieden holds the rank of Academy and Emeritus Professor of Telecommunications and Law at Penn State University. His published work includes universal service funding reform with emphasis on new strategies for making access to voice and data services affordable and widely available. He has published four books, over one hundred articles, and numerous book chapters and monographs on telecommunications policy and law. He frequently makes pro bono contributions, including amicus briefs, filings in Federal Communications Commission (“FCC”) proceedings, and participation in forums organized by the International Telecommunication Union, the United Nations, the World Bank, universities, and other institutions. *See Curriculum Vitae* (Attachment A).

Petitioners ask this Court, in one fell swoop, to eliminate entirely the FCC’s longstanding Universal Service Fund (“USF”). Missing from

¹ This brief is submitted with the consent of all parties and intervenors. Undersigned counsel for amicus curiae certifies that this brief was not authored in whole or in part by counsel for any of the parties; no party or party’s counsel contributed money for preparing or submitting this brief; and no one other than amicus curiae and his counsel have contributed money for preparing or submitting this brief.

Petitioners' opening brief, however, is virtually any historical context regarding universal service in this country, even before introduction of the USF program in 1996 and, in particular, almost a Century's worth of efforts by Congress, the FCC, and the telecommunications industry to ensure that rural areas, schools, libraries, healthcare facilities, and low-income segments of society have equal access to essential voice and data services.

Professor Frieden is well-positioned to provide this Court with the proper historical perspective about how universal service has played a crucial role in this country, including developments leading up to the formal establishment of the USF program in 1996. This filing briefly: (i) traces the purposes and goals of universal service, particularly in promoting access parity and affordability; (ii) summarizes the history of universal service in this country and abroad; (iii) identifies the technological and market forces underlying the significant expansion of the universal service mission for the benefit of residents everywhere in this country; and (iv) discusses the unappreciated advantages in relying on a non-governmental entity, in this case the Universal Service Administrative Company ("USAC"), to implement the USF program.

SUMMARY OF ARGUMENT

Going back to the early 1900s, the federal government and telecommunications industry have worked to expand affordable voice and data services to those segments of society that might have been otherwise left behind. Realizing that a fully connected citizenry is necessary to promote civil and political discourse, enhance the business environment, improve education, and support public health and safety, these efforts have evolved over time. What began with AT&T supporting the expansion of telecommunication services using profits generated by long-distance service to subsidize local telephone service is now achieved through the FCC's Universal Service Fund ("USF") in which carriers pass through legislatively mandated subsidy contributions to telecommunications service subscribers.

Even today, new technological advances and ever-changing market forces require adjustments to the USF to meet the twin goals of affordable and ubiquitous access to telephone and broadband services. Indeed, with the explosion of broadband and wireless networks, the United States and countries around the world increasingly rely on universal service subsidies to bring much needed access to rural locales,

low-income subscribers, and schools, libraries, and healthcare facilities. Further, to manage this increasingly complex task of collecting funds and dispersing them to countless beneficiaries, Congress and other national governments have established private entities, like the Universal Service Administrative Company (“USAC”), to collect and disburse funds subject to appropriate government oversight.

The benefits of such arrangements clearly serve the public interest. Assigning administrative duties to an entity separate from the regulator allows for more efficient use of funds, ensures impartiality of the fund administrator, facilitates transparency and auditing, eliminates the need to hire more government employees, helps guard against waste, fraud, and abuse, and establishes a management system that is nimble and able to quickly adjust to changing circumstances. Although this approach has been subject to litigation in the past based on claims that Congress and/or the FCC have reached beyond their authority or acted in an unconstitutional manner, courts have roundly rejected such arguments and upheld the universal service ideal.

Accordingly, this Court should deny the petition for review.

ARGUMENT

I. The United States and Countries Throughout the World Have Prioritized Universal Access to Affordable Telecommunications on Par with Electricity, Water, and Other Essentials.

In their zeal to wipe the FCC's current USF program completely off the books, Petitioners make little mention of the compelling reasons why most nations actively promote affordable and widely accessible voice and data services.² Soon after the introduction of telephone service, telecommunications company executives, elected representatives, and the public largely supported the goal of ubiquitous and affordable service:

It is commonly thought that schools, businesses, hospitals, units of government, families, neighborhoods, and public safety institutions benefit and function more efficiently and effectively if all of society has telecommunications service. John D.

² “Nearly every country in the world has universal service or access regulations in an attempt to ensure that everyone in the country can access telecommunications services at affordable prices...” Scott Wallsten, *Reverse Auctions and Universal Telecommunications Service: Lessons From Global Experience*, 61 Fed. Comm. L.J. 373 (March, 2009) (tracking use of reverse auctions to achieve universal service goals at the lowest cost). *See also High-Cost Universal Service Support*, WC Docket No. 05-337, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking, 24 FCC Rcd. 6475 (2008) (early adoption in the U.S of reverse auctions to achieve more efficient disbursement of universal service funds).

Burrows, *et al.*, National Regulatory Research Institute, *Universal Service in the United States: Dimensions of the Debate*, NRRI 94-08, 55 (June, 1994); retrieved from: <https://pubs.naruc.org/pub/FA85D879-91E5-8025-F857-8CCD4395DC24>.

Universal telephone service generates substantial societal, national security,³ and economic dividends:

Universal access in the digital era goes beyond extending networks, addressing the use of those networks and framing broadband as a key enabler of digitalization. Evidence of digitalization can be seen throughout society, whether in financial technology applications, such as mobile money and mobile wallets to ensure that anyone with a mobile phone can be banked, or in e-health and online education services, which have been transformative and had a significant economic impact. *Financing universal access to digital technologies and services*, 8 (2021); retrieved from: https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF-2021-ECO_FIN-PDF-E.pdf.

³ In light of newly identified risks that equipment manufactured by Chinese companies may support government ordered surveillance and service disruption, Congress allocated funds for carriers, receiving universal service funding, to extract and replace such plant. Secure and Trusted Communications Networks Act of 2019, Pub. L. 116-124, 133 Stat. 158 (2020), *codified at* 47 U.S.C. § 1601 *et seq.* See also *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, WC Docket No. 18-89, Second Report and Order, 35 FCC Rcd. 14284 (2020).

Several global and regional intergovernmental organizations, including the International Telecommunication Union (“ITU”),⁴ United Nations,⁵ and the Organization of American States,⁶ have declared universal access to both voice and broadband data services an essential,

⁴ See, e.g., International Telecommunication Union, *How broadband, digitization and ICT regulation impact the global economy: Global econometric modelling* (November 2020); retrieved from: https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF.BDR-2020-PDF-E.pdf.

⁵ “There is growing global consensus that the Information and communication technologies (ICTs), and particularly Internet are providing a new framework and huge opportunities for economic, political and social development. The World Summit for Social Development (WSSD, Copenhagen, 1995) recognized that the new information technologies and new approaches to, access to, and use of technologies by people living in poverty can help in fulfilling social development goals; and therefore recognize the need to facilitate access to such technologies. WSSD emphasized that promoting access for all to education, information, technology and know-how is an essential means for enhancing communication and participation in civil, political, economic, social and cultural life, and for ensuring respect for civil, political, economic, social and cultural rights.” United Nations, Department of Economic and Social Affairs, Poverty, *Information and communication technologies (ICTs)*; retrieved from: <https://www.un.org/development/desa/socialperspectiveondevelopment/issues/information-and-communication-technologies-icts.html>.

⁶ See, e.g., The Organization of American States, Inter-American Telecommunication Commission (CITEL), *Initiatives to Expand Telecommunications/ICT in Rural, Unserved or Underserved Areas*; retrieved from: <https://www.oas.org/ext/en/main/oas/our-structure/agencies-and-entities/citel>.

core mission.⁷ In 1985, the ITU endorsed the goal to “bring all mankind within easy reach of a telephone by the early part of the next century.”⁸

Society benefits when residents in rural, high-cost areas can accrue the same opportunities from accessing telecommunications and information networks available to residents in densely populated areas having much lower service costs.⁹ Telecommunications carriers and governments long ago recognized the merits in generating a pool of funds to stimulate greater geographical penetration of networks into rural areas, beyond what marketplace resource allocation would achieve. Similarly, universal service funds defray the cost of

⁷ “Given the vital role telecommunications play not only in such obvious fields as emergency, health and other social services, administration and commerce, but also in stimulating economic growth and enhancing the quality of life, creating effective networks world wide will bring immense benefits.” International Telecommunication Union, *The Missing Link Report of the Independent Commission for World Wide Telecommunications Development*, Chapter 10, 65 (1985); retrieved from: <https://www.itu.int/en/history/Pages/MaitlandReport.aspx>.

⁸ *Id.* at 6.

⁹ “The importance of rapid, widespread telecommunications to government, business, and society can scarcely be overstated. Because communications infrastructure coordinates and unifies a country in countless ways, the universal service concept spans the realms of economic and social policy.” Milton L. Mueller, Jr., *Universal Service, Competition, Interconnection, and Monopoly in the Making of the American Telephone System*, 1 (1997).

subscribing to telecommunications services making it possible for more people to connect, including individuals whose financial circumstances would have foreclosed access, absent a financial subsidy.

In addition to supply-side financial support, many countries stimulate demand for services by partially defraying the cost of equipment needed for network access, now including wireless handsets, personal computers, modems, and routers. Such demand-side promotion helps existing and prospective subscribers acquire the digital literacy skills needed for accessing the variety of new services available via broadband digital networks. Safe, secure, affordable, and ubiquitous access to telecommunications also enhance societal wellbeing, including the ability to communicate and transact personal and business matters without foreign surveillance and disruption.¹⁰

¹⁰ See, e.g., *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs, Huawei Designation, ZTE Designation*, WC Docket No. 18-89, PS Docket Nos. 19-351, 19-352, Report and Order, Further Notice of Proposed Rulemaking, and Order, 34 FCC Rcd. 11423 (2019); *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, WC Docket No. 18-89, Declaratory Ruling and Second Further Notice of Proposed Rulemaking, 35 FCC Rcd. 7821 (2020), *petition for review denied, Huawei Technologies USA, Incorporated v. Federal Communications Commission*, 2 F.4th 421 (5th Cir. 2021); *Protecting Against National Security Threats to the*

Telecommunications networks increase in value as the number of connections and subscribers increase, what economists classify as a positive networking externality.¹¹ Connectedness for all emphasizes parity, with less regard for the costs incurred in serving specific subscribers and locales.

To improve access, private actors, such as telephone companies and public actors, including legislatures and National Regulatory Authorities throughout the world, have relied on market countervailing or augmenting initiatives. A key universal service strategy, used throughout many different phases and spanning decades, consists of subsidy funding, which creates a pool of funds available to support and

Communications Supply Chain Through FCC Programs, WC Docket No. 18-89, Third Report and Order, 836 FCC Rcd. 11958 (rel. July 14, 2021).

¹¹ “It is widely accepted that the value received by the users of the public switched telecommunications network [a common reference to voice telephone lines] is increased by the addition of new users. An externality occurs because more value or service is received because more people can call or be called by the user. Extension or outreach actions designed to attract or maintain users on the system are cost justified, in part, because of these received externalities,” John D. Borrows, *et al.*, National Regulatory Research Institute, *Universal Service in the United States: Dimensions of the Debate*, NRRI 94-08, 55 (June, 1994); retrieved from: <https://pubs.naruc.org/pub/FA85D879-91E5-8025-F857-8CCD4395DC24>.

reduce the price of services deemed worthy of such promotional pricing. Subsidy beneficiaries include carriers operating in expensive-to-serve rural areas, schools, libraries, healthcare facilities, the elderly, and people with low incomes regardless of location.

Most nations, including the United States, create subsidy funding pools without taxation:

USFs are typically funded via some form of contribution mechanism from telecommunication service providers/operators. In the majority of cases, the operator contributions are in the form of a levy based on a percentage of annual operating revenues. International Telecommunication Union, *Universal Service and Digital Inclusion for All*, 1 (2013); retrieved from: https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/USF_final-en.pdf.

As discussed below, U.S. carriers initially opted to price interstate, long distance telephone service at rates sufficient to subsidize infrastructure buildouts into locales with low population densities and to offer intrastate, local telephone service at low rates with an eye toward stimulating subscribership. Later, governments and agencies, including the FCC, established rules, procedures, and regulations designed to achieve the same outcome:

Universal service has been a fundamental goal of federal telecommunications regulation since the

passage of the Communications Act of 1934. Indeed, the FCC's very purpose is "to make available, so far as possible, to all the people of the United States ... a rapid, efficient, Nation-wide, and world-wide wire and communication service with adequate facilities at reasonable charges." *Alenco Communications, Inc. v. F.C.C.*, 201 F.3d 608, 613 (5th Cir. 2000), *quoting* 47 U.S.C. § 151 (as amended) and *citing Texas Office of Pub. Util. Counsel v. F.C.C.*, 183 F.3d 393, 405–06 & n. 2 (5th Cir. 1999).

The recent Covid-19 epidemic provides clear evidence of the harms resulting from inferior or nonexistent access to essential services available via telecommunications lines, such as education, government and commercial transactions, health care, self-expression, and entertainment. The need for unconnected people to seek a wireless broadband connection far from home dramatically evidences the importance of the universal service mission.¹²

¹² "COVID-19 has led to unprecedented limitations on people's mobility as governments have sought to curb the spread of the airborne virus and avert crises in unprepared health systems across the world. Following the varying levels of restrictions put in place globally at different periods throughout 2020 and into 2021, people have been forced to turn to e-learning, remote working, online shopping and even virtual funerals. The pandemic has opened the door to the use of digital technology in ways never before imagined and given real meaning to the prefixes 'e-', 'remote,' 'virtual,' 'online' and 'distance.' During this time, digital technology has been crucial – for those with access. While on the one hand, the crisis has led to the fast-tracking of digital adoption in countries that already had some level of digitalization; on

II. The FCC's Current USF Program Evolved From Universal Service Funding Occurring Prior to 1996.

In their opening brief, Petitioners also give short shrift to the historical underpinnings of today's USF program. In the U.S., universal service became a goal soon after the introduction of telephone service. In 1907, AT&T President Theodore N. Vail highlighted the company's commitment with the phrase "One Policy, One System, Universal Service." In application, this goal included self-serving interests in promoting a Bell System "natural monopoly," bolstered by refusals to interconnect its network with other carriers and an aggressive campaign to acquire these independent companies. On the other hand, AT&T expressed a commitment to serve the national interest by expanding service far and wide, thereby promoting economies of scale and accrual of positive network externalities.

the other, it has exposed digital inequalities, which are particularly large in less developed economies. Never has the impact of the digital divide been so glaring." International Telecommunication Union, Development Sector, *Financing universal access to digital technologies and services*, 1 (2021); retrieved from: https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF-2021-ECO_FIN-PDF-E.pdf.

In settling the first of several antitrust lawsuits filed by the Justice Department, AT&T Vice President Nathan Kingsbury, in 1913, announced a commitment to stop acquiring independent companies, to divest the company's investment in Western Union, the primary provider of text-based services, and to permit independent telephone companies to connect their networks with AT&T's long-distance facilities.

As AT&T's revenues grew, so too did market penetration of basic telephone services, albeit primarily in urban locales. On its own accord, AT&T sought to bolster network expansion into rural areas by charging high long-distance rates and using some of the profits to maintain or reduce local phone service subscription fees. Eight years after its commitment not to acquire competitors, AT&T resumed acquisition of independent telephone companies as permitted by the Willis Graham Act of 1921. The federal government treated AT&T as a natural monopoly subject to oversight by the Interstate Commerce Commission.

Eventually, AT&T's privately conceived and implemented universal service subsidy mechanism became federal regulatory policy. Starting in the 1950s, the FCC established universal service policies

and rules based on a general mandate contained in Title I of the Communications Act of 1934, 47 U.S.C. § 151 *et seq.*, to promote the wider use of wire and radio. In consultation with the major telephone industry trade association, and later a Federal-State Joint Board on Universal Service, as authorized by 47 U.S.C. § 410(c), the FCC established as federal policy AT&T's previously implemented strategy of using long distant rates to subsidize local service and promote universal service objectives. *MTS and WATS Market Structure*, CC Docket Nos. 78-72 and 80-286, Report and Order, 2 FCC Rcd. 2953 (1987); *Amendment to Part 69 of the Commission's Rules Relating to the Assessment of Charges for the Universal Service Fund and Lifeline Assistance*, CC Docket Nos. 78-72 and 80-286, Memorandum Opinion and Order, 4 FCC Rcd. 6134 (1989).

The FCC sought to make the process clear, uncontroversial, and consistent with AT&T's prior decision to subsidize local rates. The Commission's new cost allocation methodology maintained the status quo by assigning a disproportionate share of AT&T's network costs to the interstate service sector. The Commission's action matched existing goals of incumbent telephone companies and took advantage of ample

flexibility in allocating plant costs because most telecommunications capital expenditures constitute a “sunk cost” that does not vary with usage. A telephone company must invest in network infrastructure capable of providing both intrastate and interstate services, and be able to handle peak traffic volumes:

Thus long-distance callers, charged on the basis of the frequency and distance of their calls, covered through their payments a significant portion of the costs of local subscriber plant. Revenues paid in by long-distance callers were shared by AT & T with the local companies through a process called settlements and division of revenues.

That basic system remains in effect today. The FCC, working with a Federal-State Joint Board established pursuant to 47 U.S.C. § 410(c) (1976), allocates local plant costs between the interstate jurisdiction (FCC controls recovery of costs) and the intrastate jurisdiction (state commissions control recovery of costs). This mode of allocation—the “separations process”—currently assigns roughly 26% of the costs of local exchange plant to the interstate jurisdiction.¹³

¹³ *National Ass’n of Regulatory Utility Com’rs v. F.C.C.*, 737 F.2d 1095, 1105 (D.C. Cir. 1984), *citing* Amendment of Part 67, 89 F.C.C.2d 1, 5, *modified*, 90 F.C.C.2d 522, *recon. denied*, 91 F.C.C.2d 558 (1982); *MCI Telecommunications Corp. v. F.C.C.*, 712 F.2d 517, 523 & n. 4 (D.C. Cir.1983).

In close coordination with telephone companies, the FCC decided to allocate 25% of non-traffic sensitive costs to interstate services, a decision considered reasonable by a reviewing court:

Allocating twenty-five percent of NTS costs to interstate jurisdiction in effect transfers those costs to the rate bases of interstate carriers, forces them to recover those costs through their rates, and reduces their profitability. The Supreme Court, however, has reviewed statutorily authorized economic regulation with great deference. . . .

In this case, nothing in the record suggests that the Commission's allocation of twenty-five percent of NTS costs to the interstate jurisdiction constitutes a confiscation of MCI's property. . . .

[W]e can discern no difference rising to the level of a Takings Clause objection. *Rural Telephone Coalition v. F.C.C.*, 838 F.2d 1307, 1313-1314 (D.C. Cir. 1988).

The court in *Alenco Communications* also ruled that despite the possible reduction in a carrier's profitability, compliance with FCC universal service regulations did not constitute an unlawful confiscation or taking of property:

[P]etitioners do not present credible evidence that the Order ever will cause the drastic consequences for rural LEC's articulated in *Duquesne* [*Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989)]. The mere fact that, "[f]or many rural carriers, universal service support provides a large share of the carriers' revenues," Order ¶ 294, is not enough to establish that

the orders constitute a taking. The Fifth Amendment protects against takings; it does not confer a constitutional right to government-subsidized profits. *Alenco Communications*, 201 F.3d at 624.

The onset of long-distance telephone service competition eliminated the continuing use of a simple cost allocation methodology to create a subsidy mechanism to promote universal service. When companies, such as MCI, entered the long-distance market, AT&T could no longer maintain the local service subsidy because MCI and other market entrants offered much lower rates. MCI forced long distance rates closer to being cost-based, despite having to interconnect with the Bell System on terms, conditions, and rates designed by AT&T to thwart competition. Then, with the 1984 divestiture of the Bell Operating Companies, AT&T lost control over the terms and conditions regarding access to the local exchanges used to originate and terminate long distance calls. The newly independent Bell companies established cost-based access charges applicable to both AT&T and its competitors.

As a result, between 1984 and enactment of the Telecommunications Act of 1996, the FCC initiated numerous regulatory proceedings to structure access pricing in a fair, transparent, and cost-based manner. No longer able to rely on high long-distance

rates to generate a source for subsidization, the FCC shifted much of the financial burden on accessing long distance networks via local telephone exchanges directly onto consumers. The Commission opted to apply flat-rate “access charges” that appeared on customers’ local telephone service bills as new line items, such as the Subscriber Line Charge.¹⁴ This fee replaces retail long distance rates as the primary source of compensation to local exchange carriers for their so-called first mile delivery of long-distance calls to an interexchange carrier, such as MCI and AT&T, and the last mile delivery from an interexchange carrier to the intended call recipient.

Throughout this transition from monopoly to competitive marketplace, the FCC adjusted universal service funding procedures making it clear that consumers would directly compensate local

¹⁴ Verizon, a major U.S. Local Exchange Carrier, offers the following description of this monthly charge: “The FCC has mandated an access charge (known as the FCC Line Charge) to partially reimburse telephone service providers for the cost of routing long distance calls made by local customers. This charge is applied to all customers who have telephone lines in their home or business, whether they make long distance calls or not. This is also known as the Federal Subscriber Line Charge and the Federal Line Cost Charge. Verizon, *Understanding Your Bill*; retrieved from <https://www.verizon.com/business/support/billing/understanding-billing-charges/>.

exchange carriers for the costs of providing access to their networks.

Reviewing courts largely deferred to the Commission's expertise and determination that it needed to establish a multi-year transition from long distance revenues, serving as the primary source of universal service subsidies, to new billing line items on subscribers' bills: "[I]t is reasonable to conclude that Congress left a gap to be filled by the FCC, i.e., for the FCC to determine and specify precisely how USF funds may or must be used." *In re FCC 11-161*, 753 F.3d 1015, 1046 (10th Cir. 2014).

Likewise, no court has embraced Petitioners' assertion that universal service contributions from carriers and their subscribers constitute an unconstitutional taking or tax: "We also find unacceptable MCI's argument that the twenty-five percent allocation [of carriers' non traffic sensitive plant investment] is an exercise of taxing power that Congress has not delegated to the Commission." *Rural Telephone Coalition*, 838 F.2d at 1314.

III. The Universal Service Mission Spans Decades and Has Changed in Terms of Scope, Technologies Supported, Methods to Promote Widespread and Affordable Access, Who Qualifies for Financial Support, and How to Finance, Structure, and Manage the Subsidy Process.

While Petitioners characterize the growth of universal programs as largely a power grab by the FCC, in reality, legitimate technological and market forces have resulted in the broad USF program we see today. Achieving progress in terms of broader geographical reach, affordability, and demand requires both creative thinking and skillful accounting. Telecommunications networks typically require very high initial capital expenditures in infrastructure that carriers must install and activate before accruing any revenues. Having made these sunk investments, carriers can accrue positive networking externalities because low incremental cost to add a subscriber creates opportunities to expand subscriber numbers quickly and inexpensively. Universal service subsidies help carriers extend their networks into rural areas, where incremental costs remain high because of low population density, difficult terrain, harsh climate, and other factors.

Over time, universal service goals and funding strategies have changed because of technological innovations, diversifying consumer

requirements and interests, identification of new subsidy beneficiaries, such as schools and healthcare facilities, and disruptions to the ability of carriers to generate sufficient funds for subsidies due to the onset of competition. These factors collectively have made the universal service mission more comprehensive, diversified, and expensive.

Even as universal service funding continues to improve subscribership of voice telephone service, many nations have expanded the mission to include broadband network access and the variety of services available via the Internet: “The universal service challenge of our time is to ensure that all Americans are served by networks that support high-speed Internet access—in addition to basic voice service—where they live, work, and travel.” *Connect America Fund, et al.*, WC Docket No. 10-90, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17663, 17668 (2011).

Expanding the number and type of subsidy recipients greatly complicates the process of collecting and dispersing funds, and increases the total amount of necessary subsidies, because carriers must upgrade and eventually replace existing networks to provide broadband

connections. Additionally, broadband subscribers need to rent or purchase new equipment to secure network access.

Conventional marketplace forces create incentives for telephone companies to install new wireless networks, and to retrofit, and later, to use new fiber optic lines to provide broadband service. However, these so-called next generation networks, equipped to handle ever increasing demand for broadband services, such as video and high-speed Internet access, first appear in densely populated areas where ample numbers of prospective subscribers desire such enhanced service and are willing, and able, to pay higher rates for them.

Additionally, most legacy wireline carriers, such as AT&T, Verizon, CenturyLink, and Frontier, currently maintain two separate networks: legacy voice telephone networks and newly installed broadband networks. The D.C. Circuit Court of Appeals rejected telephone company assertions that they should not have to maintain their legacy copper wire network, because new wireless networks offer better service:

[W]e owe deference to the FCC's decision to hold a preexisting regime in place for an interim period, so as to avoid commandeering agency resources and to respect the agency's judgments about how to maintain

baseline universal service in the context of uncertainties attending a major regulatory transition. Second, in response to Petitioners' generalized allegations that vulnerable consumers do not need the disputed services and that the existing program leaves Petitioners with underfunded obligations, the FCC has made clear that it will grant case-by-case forbearance or supplemental funding in areas where providers can meet their burden to show that their services are not required or that they need additional financial help. Especially in the context of this systemic regulatory transition, no more is required. *AT&T, Inc. v. Federal Communication Commission*, 886 F.3d 1236, 1241 (D.C. Cir. 2018).

Telecommunications carriers and their subscribers understandably have concerns about increasing universal service funding requirements, occurring at the same time as other costs rise. However, a significant portion are either transitory or occasional. Carriers soon will retire their terrestrial, wireline networks as more subscribers migrate to wireless networks. Subscribers of broadband services can expect their newly acquired modems and routers to last for several years. Additionally, both Congress and the FCC can devise remedies to growing universal service financial burdens borne by telecommunications subscribers by expanding what types of services and service providers should be subject to the contribution requirement.

However, the need for timely and effective reforms to the universal service funding process does not justify abandonment of the mission.

IV. Many National Governments have Created a Separate or Affiliated Entity to Manage Universal Service Funds Collection and Distribution, Subject to Oversight by the National Regulatory Authority or Ministry.

Petitioners criticize the use of a separate non-governmental entity for managing universal service programs, but ignore the numerous benefits of such arrangements. A list of best practices in universal service funding and management, compiled by the International Telecommunication Union, recommends “[e]stablishment of the USF as [a] separate, independent (autonomous) entity.” 2013 ITU Universal Service Report at 21. Creating an independent and well-qualified fund administrator promotes efficiency, impartiality, and professionalism.¹⁵

Because of the complexity in collecting and disbursing universal service funds among a diverse and expanding array of beneficiaries, most national governments have opted to rely on an organization

¹⁵ A joint program of the ITU and The World Bank recommends “autonomous UASFs in administrative budgeting and allocation of resources.” ITU and The World Bank, *Digital Regulation Platform; Universal access and service funds*, retrieved from: <https://digitalregulation.org/access-for-all/>.

unaffiliated with the National Regulatory Authority or Ministry, but subject to its oversight. *See, e.g.*, 2013 ITU Universal Service Report at 24-117; Digital Regulation Platform, Indonesia's Universal Service Obligation Fund (Sep. 24, 2020); retrieved from: <https://digitalregulation.org/indonesias-universal-service-obligation-fund/> (a public service institution separate from the Directorate General of Posts and Telecommunications regulator manages the Universal Service Obligation Fund). Such a separate entity can secure the services of people with the necessary expertise, but not at the expense of adding hundreds, or even thousands more federal government employees.

Having a separate organization, such as the Universal Service Administrative Company in the United States, promotes greater transparency, accountability, and efficiency in the collection and disbursements of funds.¹⁶ Additionally, such an organization can

¹⁶ The FCC designated USAC as the interim USF Administrator in 1997. USAC became the permanent Fund Administrator in 1998. *See Changes to the Board of Directors of the National Exchange Carrier Association, Inc. and Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report and Order and Second Order on Reconsideration, 12 FCC Rcd. 18400 (1997); *Changes to the Board of Directors of the National Exchange Carrier Ass'n, Inc. and Federal-State*

maintain its independence from specific stakeholders and funding beneficiaries that might attempt to lobby the telecommunications regulator with an eye toward thwarting reforms.¹⁷ Similarly, an independent body can offer unbiased forensic assessments whether a carrier has achieved progress in reaching universal service goals, conduct periodic audits of beneficiaries' use of funds,¹⁸ and offer focused diligence to identify waste, fraud, and other abuses.

Joint Board on Universal Service, CC Docket Nos. 97-21 and 96-45, Third Report and Order, Fourth Order on Reconsideration in CC Docket No. 97-21 and Eighth Order on Reconsideration in CC Docket No. 96-45, 13 FCC Rcd. 25058 (1998).

¹⁷ The composition of USAC's nineteen Board of Directors represents a wide array of stakeholders including three directors from schools eligible to receive subsidies, one director from an eligible library, and two directors from eligible rural health care providers that are eligible to receive discounts. Additionally, seven directors must represent one of the following constituencies: eligible consumers, state telecommunications regulators, state consumer advocates, wireless providers, competitive local exchange carriers, cable operators, and information service providers. Universal Service Administrative Co., *Board of Directors*; retrieved from: <https://www.usac.org/about/leadership/board-of-directors/>.

¹⁸ See Universal Service Administrative Co., *Appeals and Audits*; retrieved from: <https://www.usac.org/lifeline/rules-and-requirements/appeals-audits/>.

As technology evolves and existing or prospective consumer requirements change, an independent universal service funding organization can readily adapt to new circumstances and implement administrative refinements.¹⁹ Congress recently validated the importance of having the USAC available to manage new universal service funding initiatives in response to the Covid-19 pandemic. The 2021 Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021) authorizes the FCC to rely on USAC for implementation of the Affordable Connectivity Program that allocates \$14.2 billion²⁰ in additional universal service funding support during the Covid-19 pandemic. USF Reform NOI at ¶48, *citing* Infrastructure Investment and Jobs Act, div. F, title V, §§ 60502(a)(2)(C), (a)(2)(E); Consolidated Appropriations Act, div. N, tit. IX, § 904(i)(5) (2021).

¹⁹ On its own accord and at the direction of Congress, the FCC regularly seeks to improve the universal service funding program, with an eye toward reducing waste and adapting to changed circumstances. *See, e.g., Report on The Future of the Universal Service Fund*, WC Docket No. 21-476, Notice of Inquiry, FCC 21-127 (rel. Dec. 15, 2021) [hereinafter cited as USF Reform NOI].

²⁰ *See, FCC, Affordable Connectivity Program*; retrieved from: <https://www.fcc.gov/acp>; Universal Service Administrative Co., *Affordable Connectivity Program*; retrieved from: <https://www.usac.org/about/affordable-connectivity-program/>.

Additionally, the Consolidated Appropriations Act recognizes the merits in having USAC evaluate and authenticate applicant qualifications for new universal service funding. The Act “includes language specifying that the Secretary of Agriculture, the Secretary of Education, and the Secretary of Health and Human Services shall enter into a memorandum of understanding with USAC to provide for the expeditious sharing of data through the National Verifier, or any successor system, for the purposes of verifying consumer eligibility for the program. *Id.* at n. 79, *citing* Infrastructure Act, div. F, title V, § 60502(e).

USAC serves an ever-increasing number of beneficiaries, including 8.1 million individuals, 1.2 million households qualifying for discounted telecommunications and broadband service, 128,147 schools and libraries, and 9,050 rural health care facilities.²¹ Predictably, the amount of funds available and a large group of subsidy candidates

²¹ Universal Service Administrative Co., *Datasets*; retrieved from: <https://opendata.usac.org/>.

create incentives for criminal conduct and uncertainty about who qualifies and how much they should receive. Both USAC²² and the FCC²³ conscientiously work to identify and sanction abuses through audits and investigations.

CONCLUSION

Throughout the sequence of private, regulatory agency, and legislative initiatives, the United States has led the world in developing

²² See Universal Service Administrative Co., *Appeals & Audits*; retrieved from: <https://www.usac.org/about/appeals-audits/>.

²³ “[I]ncreased demand and resulting administrative challenges [have] required us to take a closer look at whether the current rules and procedures are cost-effective and efficient and adequately protect the Universal Service Fund against waste, fraud, and abuse.” *Promoting Telehealth in Rural America*, WC Docket No. 17-310, Report and Order, 32 FCC Rcd. 7335, 7336 (2019). See also *American Broadband & Telecommunications Company, Jeffrey S. Ansted*, DA 22-421, Order (rel. June 3, 2022) (recovering \$16,618,235.44 for, *inter alia*, failing to maintain proper procedures to ensure compliance with the Commission’s rules, and seeking subsidies for ineligible and duplicate accounts and deceased individuals); *DataConnex, LLC*, FCC 18-9, Notice of Apparent Liability for Forfeiture and Order, 33 FCC Rcd. 1575 (2018) (proposing an approximately \$19 million forfeiture for filing forged, false, misleading, and unsubstantiated information to increase funding); *Network Services Solutions, LLC, Scott Madison*, FCC 17-70, Amendment to Notice of Apparent Liability for Forfeiture and Order, 32 FCC Rcd. 5169 (2017) (proposing an approximately \$22 million forfeiture for alleged violations including preparing and transmitting forged and false documents).

a funding and management system to achieve universal service goals. Private and public sector initiatives have made it possible for this nation to accrue economic development and societal benefits. Because circumstances change, the ongoing accrual of such benefits has required frequent reassessments and modifications of the universal service funding system. Reviewing courts have evaluated both the baseline foundations for creating a funding mechanism, as well as the many modifications and refinements undertaken by the FCC over decades. The Commission's initiatives have been affirmed, based on the prudent determination that a legislative mandate exists, and the FCC has reasonably interpreted how to generate the best outcomes consistent with congressional guidance.

Reviewing courts have rejected as misguided and illogical claims that the FCC has exceeded its statutory authority and has engaged in unconstitutional activities. The United States universal service funding system comports with global best practices.²⁴ When it becomes

²⁴ An important comparative study of national universal service funding regimes ranked the United States in the highest category for engagement and performance, a top designation assigned to only 38% of the 69 mostly developed nations studied. ITU, *Universal Service and Digital Inclusion for All* at 4, 112.

apparent that it must fine-tune and revise the funding and disbursement process, the FCC has made timely corrections. Such midcourse corrections have occurred because of changed circumstances, and occasionally, in response to newly enacted statutory requirements.

Surely the FCC must confront chronic and emerging challenges to the universal service regime, including inefficiency, fraud, declining subscriptions to services subject to a funding requirement, and an expanded mission that now includes broadband access. But none of this justifies a wholesale elimination of the USF program, or a credible basis for challenging the lawfulness of the mission and recommending its abandonment.

Based on the foregoing, this Court should deny the petition for review and affirm as lawful the order of approval issued by the FCC authorizing the Universal Service Contribution Factor for the Second Quarter of 2023, CC Dkt. No. 96-45, DA 23-216 (March 14, 2023).

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Fed. R. App. P. 29(a)(5) because it contains 6,250 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(f).

This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5)(A) because it has been prepared in a proportionally spaced typeface using Microsoft Word in Century Schoolbook (14-point).

Dated: October 2, 2023

/s/ Eric P. Gotting

CERTIFICATE OF SERVICE

I certify that, on October 2, 2023, I electronically filed the foregoing brief with the Clerk of the Court for the United States Court of Appeals for the District of Columbia through the CM/ECF system, which will serve all parties, intervenors, and amici electronically.

Dated: October 2, 2023

/s/ Eric P. Gotting

ATTACHMENT A

Curriculum Vitae of Rob Frieden

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Education Background

B.A., University of Pennsylvania, 1977 (cum laude with distinction in the major)

J.D. University of Virginia, 1980

Professional Background

2021-2022 **WILSON CENTER FELLOW**, Smithsonian Institute, Washington, D.C.
Explored the risks and rewards in global spectrum planning at the International Telecommunication Union at the nation's key non-partisan policy forum for tackling global issues through independent research and open dialogue to inform actionable ideas for the policy community.

1992-2021: **PIONEERS CHAIR AND PROFESSOR OF
TELECOMMUNICATIONS AND LAW**, Pennsylvania State University,
University Park, Pennsylvania

Teach courses and research issues in the law, regulation, and business of, cybersecurity, electronic commerce, information technologies, intellectual property, outer space, privacy, and telecommunications. Actively engaged in grant seeking, consulting, outreach, public policy advocacy and in administrative duties which have included serving as Department Head and Chair, promotion and tenure and graduate studies. Published four books and over one hundred articles in law reviews and other academic journals. Emeritus Professor status conferred July, 2021; Academy Professor status conferred July, 2023 in recognition of continuing excellence in scholarship.

1991-1992: **DEPUTY DIRECTOR-INTERNATIONAL RELATIONS**, Motorola
Satellite Communications, Inc. Washington, D.C. and Chandler, Arizona

Primary manager for spectrum allocation, business development, strategic planning, and international regulatory liaison efforts of the IRIDIUM™ mobile satellite venture.

1989-1991: **CONSULTANT**

Sole practitioner providing legal, regulatory and strategic counsel on telecommunications and information management issues including network interconnection, national regulatory policy, carrier disputes and next generation network development.

1988-1989: **ASSISTANT GENERAL COUNSEL**, Private Trans-Atlantic Telecommunications System, Inc. McLean, Virginia

Primary in-house counsel for resolving corporate, legal, transactional and regulatory problems affecting construction and operation of the first private international fiber optic cable in the U.S.; Principal negotiator for sale or lease of transmission capacity and for terrestrial backhaul facility contracts to link the cable with urban centers.

1986-1988: **PROGRAM MANAGER FOR INTERNATIONAL FACILITY AND SERVICE POLICY**, National Telecommunications and Information Administration, Washington, D.C.

Chief liaison with other federal government agencies for executing international telecommunications treaties and for multilateral coordination on satellite and spectrum policies. Managed Executive Branch filings at the Federal Communications Commission.

1982-1986: **ATTORNEY**

Associate in the communications departments of three prominent Washington, D.C. law firms. Performed transactional and regulatory services for satellite, fiber optic and wireless carriers, cable television systems and broadcasters. Prepared pleadings in FCC and judicial cases; briefed clients and Congressional staff on communications policy issues.

1980-1982: **ATTORNEY ADVISOR**, Federal Communications Commission, Washington, D.C.

Drafted international telecommunications policies and regulations for public vote by FCC Commissioners. Presided over carrier facility interconnection negotiations.

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Representative Research Projects, Grants, and Contracts

Sole preparer of a 200 page primer on broadband technologies primer included in *Broadband Strategies Toolkit* created by InfoDev, a global partnership program of the World Bank (2012-13); <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/825001507011053469/main-report>.

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Primary author of a Friend of the Court brief in *FCC v. Prometheus Radio Project*, Supreme Court Docket No. 19-1231; <https://www.supremecourt.gov/docket/docketfiles/html/public/19-1231.html> (review of FCC reductions in broadcast media ownership limitations).

Serving as a Panel Member of the Belgium FWO Review College for 2021-2023. This organization evaluates grant proposals much like the U.S. National Science Foundation.

Pro bono background provided the U.S. Government Accountability Office staff authoring: *5G Deployment FCC Needs Comprehensive Strategic Planning To Guide Its Efforts* (June, 2020); available at: <https://www.gao.gov/assets/710/707530.pdf>.

Prepared an analysis of California legislation mandating network neutrality for a major U.S. telecommunications carrier.

Briefed the California-based staff of a major U.S. telecommunications carrier on developments in next generation network law and regulation.

Provided background and perspective on U.S. antitrust policy for a report entitled *Challenges of competition policy in a digitalised economy*, prepared for the European Parliament, Directorate General for Internal Policies.

Sole developer for a module on broadband technologies contained in a toolkit on broadband strategies commissioned by The World Bank.

Provided infoDev an analysis of broadband universal service policies in six representative nations.

Advised the ministry responsible for telecommunications policy in Trinidad and Tobago on a wide range of legislative, regulatory and organizational matters, including revising the existing telecommunications law, universal service policy, broadband development, the regulator's proposed costing methodology, a regulatory framework for "convergence," and ICT development incentives.

Co-directed regulatory toolkit on competition, interconnection and pricing for World Bank (infoDev) and ITU; lead author of VoIP sections of the toolkit as well as those dealing with international telephone charge settlements.

Advised regulators in Bermuda, Dominican Republic, Israel, Jamaica, Mexico, Northern Mariana Islands, Qatar, South Africa, Tanzania, Asia Pacific Economic Cooperation Group nations and the Caribbean Telecommunications Union on competition policy, interconnection and Internet peering, regulatory and legislative reform, international traffic settlements, telephone number portability, VoIP, etc.

Advised a Bermuda and Cayman Islands telecommunications service provider on VoIP service and interconnection strategies.

Predicted the impact of network neutrality policies on a major fabricator of deep packet inspection chips.

Participation in Conferences, Seminars and Workshops (last four years)

Post Covid Pandemic Setbacks in Bridging the Digital Divide, A presentation at the 51st Telecommunications Policy Research Conference, American University School of Law, Washington, D.C. (Sep. 22, 2023).

Rising Stress in Multilateral Space and Spectrum Resource Planning, A presentation at PTC'23, Honolulu, Hawaii (Jan. 18, 2023).

Lessons from Facebook's Recurring Violations of E.U. and U.S. Data Protection and Privacy Safeguards, A Virtual Presentation at the Beijing University of Posts and Telecommunications, October, 2022; available at: [BUPT Data Protection Presentation 2022](#).

Why Has Multilateral Space and Spectrum Resource Management Become More Difficult?, A Presentation at the 50th Telecommunications Policy Research Conference, American University, Washington, D.C. (September 16, 2022);

Interconnection, Interoperability, and Universal Access to the Internet and Next Generation Networks, presented virtually to the Penn State Policy Innovation Lab of Tomorrow (2022).

Platforms in the Courts of Public Opinion and Law, presented virtually to students at Chalmers University of Technology, Göteborg, Sweden (2021).

Win, Lose and Draw: Outcomes and Lessons from the 2019 World Radio Conference, presented virtually at the 2021 Conference of the International Telecommunications Society (2021).

The Risks and Rewards From Weaponizing Spectrum Planning at the International Telecommunication Union, presented virtually at the 49th Annual Research Conference on Communications, Information and Internet Policy, American University, Washington, D.C. (2021).

Section 230 of the Communications Decency Act: A Cost/Benefit Analysis, presented virtually at the University of Tennessee, College of Communication and Information (2021).

There's Probably a Blackout in Your Television Future: Tracking New Carriage Negotiation Strategies Between Video Content Programmers and Distributors, presented virtually at the 48th Annual Research Conference on Communications, Information and Internet Policy, American University, Washington, D.C. (2021). *Challenges to the Conventional Wisdom About Mergers and Consumer Welfare in a Converging Internet Marketplace*, presented virtually at the 48th Annual Research Conference on Communications, Information and Internet Policy, American University, Washington, D.C. (2021).

Spectrum Planning at the ITU: A Brief Introduction, presented virtually at PTC'21, Honolulu, HI (2021).

Research on Improving Comprehensive Network Governance Ability under the Background of Digital Economy Development: Adapting Economic and Legal Models for Unicorn Digital Platform Intermediaries, A collaborative presentation for students and faculty, presented virtually at the Beijing University of Posts and Telecommunications (2020); available at: [BUPT Platforms Presentation](#).

Challenges to the Conventional Wisdom About Mergers and Consumer Welfare in a Converging Internet Marketplace, presented at AEJMC 2020 (Aug. 7, 2020). Awarded Best Faculty Paper in the Law and Policy Division.

Panelist, *Legal and Policy*, presented at the 42d annual conference of the Pacific Telecommunications Council, Honolulu, HI (Jan 20, 2020); Panelist, *Industrial Policy and Competition Driving 5G* (Jan. 21, 2019); *World Radiocommunication Conference (WRC-19): Implications for the 5G World* (Jan. 21, 2020).

WRC-19 and 5G Spectrum Planning, A presentation at the 47th Annual Research Conference on Communications, Information and Internet Policy American University, Washington, D.C. (September 20, 2019).

An Introduction to Data Property Rights, A presentation at the Beijing University of Posts and Telecommunications (June 13, 2019).

Platforms in the Courts of Public Opinion and Law, A presentation at the 69th annual conference of the International Communications Association, Washington, D.C. (May 25, 2019).

Two-sided Internet Markets in Courts of Law and Public Opinion, presented at 9th annual Internet Law Works in Progress conference, Santa Clara Law School (March 2, 2019).

Panelist, *Update on current Legal Issues*, presented at the 41st annual conference of the Pacific Telecommunications Council, Honolulu, HI (Jan 21, 2019); Panelist, *The International Telecommunications Union: Three Sectors at a Crossroad* (Jan. 22, 2019).

Two-sided Internet Markets and the Need to Assess Both Upstream and Downstream Impacts, a presentation at the 46th annual Telecommunications Policy Research Conference, Washington College of Law, American University, Washington, D.C. (September 21, 2018); also presented at the 41st annual conference of the Pacific Telecommunications Council, Honolulu, HI (Jan 20, 2019).

How Internet Platforms Intermediaries Affect Competition and Consumers, a presentation at the European Union Institute 7th Conference on the Regulation of Infrastructures. New network structures: decentralization, prosumers and the role of online platforms, Florence, ITALY (June 21, 2018)(publication forthcoming in NETWORK INDUSTRIES QUARTERLY; 22nd Biennial Conference of the International Telecommunications Society, Seoul SOUTH KOREA (June 25, 2018).

The Internet of Platforms and Two-Sided Markets: Implications for Competition and Consumers, a presentation at the 40th annual conference of the Pacific Telecommunications Council, Honolulu, HI (Jan. 22, 2018); Internet Law Works-in-Progress, New York Law School, New York, N.Y. (March 24, 2018); State of Telecom 2017, Columbia Institute for Tele-Information, web-based event (Nov. 17, 2017); 45th annual Telecommunications Policy Research Conference Antonin Scalia Law School George Mason University, Arlington, VA (September 8, 2017).

Zero Rating and the Potential for Enhanced Digital Literacy and Stimulated Broadband Demand, a presentation at Broadband Research in a Changing World: New Technologies, Ideologies and Priorities American University Washington College of Law, Washington, D.C. (September 10, 2017).

Freedom to Discriminate: Assessing the Lawfulness and Utility of Biased Broadband Networks, a presentation at the 28th European Regional Conference of the International Telecommunications Society, Passau, GERMANY (Aug. 1, 2017).

Can Internet Service Providers Enhance, or Degrade Third Party Content?, a presentation at: 4th TILEC Workshop on Competition Policy and Regulation in Media and Telecommunications: Bridging Law and Economics, Tilburg, THE NETHERLANDS (June 1, 2017)(via teleconference).

Standards Prospective: Big Data and Internet of Things—Promoting Interoperability via Open Standards and Semantic Technologies, ITU Workshop on Internet of Things Applications for Development Port of Spain, TRINIDAD and TOBAGO (April 25, 2017).

Northern Kentucky Law Review Symposium on Controversies and Issues in Internet Law, *The Open Internet's Future, U.S. and Worldwide*, Newport, KY (March 3, 2017).

Speaking Engagements or Other Activities in Which There Was Significant Use of Expertise

Quoted in Jennifer Hiller, *Why America Doesn't Have Enough EV Charging Stations*, THE WALL STREET JOURNAL (Nov. 29, 2022); available at: <https://www.wsj.com/articles/ev-charging-stations-electric-vehicles-11669737656>.

Interviewed on American Public Media's *Marketplace* piece on network neutrality and broadband access in the United States, June 11, 2018; see *Why the end of net neutrality might look good ... at first*; <https://www.marketplace.org/2018/06/11/tech/end-net-neutrality-could-give-consumers-options-while-hurting-competition/>.

Interviewed on National Public Radio's *All Things Considered* piece on the elimination of conventional copper wire telephone service, Nov. 18, 2013; <https://www.npr.org/sections/alltechconsidered/2013/11/18/246001725/have-we-reached-the-end-of-the-landline>.

Interviewed on several American Public Media Marketplace programs regarding telecommunications and Internet issues; <https://www.marketplace.org/?s=Rob%20Frieden>.

Testified before the United States Senate, Commerce Committee on wireless telecommunications issues, June 17, 2009; <https://www.commerce.senate.gov/2009/6/the-consumer-wireless-experience>.

Interviewed on Public Broadcasting System's *News Hour With Jim Lehrer* piece on the Global Crossing bankruptcy (February 13, 2002).

Interviewed on National Public Radio's *Morning Edition* piece on trouble in the telecommunications marketplace (February 8, 2002).

Testified before the Pennsylvania House of Representatives, Judiciary Committee on House Bill 10, The Child Internet Protection Act (June 7, 2001).

Frequent source for dozens of newspaper, magazine and World Wide Web articles on telecommunications, including American Public Media Marketplace, Arstechnica, the Associated Press, Atlanta Constitution, Bloomberg News, BusinessWeek, CBS Market Watch, CNBC, Chicago Tribune, China Central Television, Christian Science Monitor, Communications Daily, Christian Science Monitor, Congressional Quarterly, Dow Jones News Retrieval Service, Forbes, Fort Lauderdale Sun-Sentinel, KYW Radio, Minnesota Public Radio, National Public Radio, Parade magazine, Philadelphia Inquirer, USA Today, Wharton Business on Sirius/XM, Wired, and the Wall Street Journal.

New Courses or Cooperative Extension Programs Developed

Maintain an active blog site TeleFrieden; <http://telefrieden.blogspot.com/>. This blog seeks to offer a provocative, unsponsored assessment of current legal, regulatory, marketplace and cultural issues affecting the information, communications and entertainment ("ICE") industries.

Developed and taught at the Dickinson School of Law and Penn State Law courses on Internet law and policy, telecommunications law and regulation and international telecommunications and space law.

Developed new graduate and undergraduate courses in media and democracy, telecommunication policy analysis, telecommunications and information processing technologies, and international telecommunications and trade policy.

Honors or Awards for Scholarship of Professional Activity

Pacific Telecommunications Council, Honorary Individual Lifetime Membership (2023) (recognizing the value of a PTC Member, PTC staff, or volunteer who has provided exceptional service to the organization over a significant period of time – 25 years or more).

Association for Education in Journalism and Mass Communications, Law and Policy Division, Best Faculty Paper at AEJMC 2020.

Pacific Telecommunications Council, Meheroo Jussawalla Research Paper Prize (2017, 2008).

Penn State, College of Communications, Dean's Excellence Award for Research (2016, 2012, 2004, 2000)

Academic Fellow, Harvard Berkman Center for Internet and Society (2015-16).

2014 ITERA Distinguished Research Award, Information and Telecommunications Education and Research Association.

Top Three Faculty Paper, Association for Education in Journalism and Mass Communications, Law and Policy Division (2013, 2009).

Top Three Faculty Paper, International Communications Association, Communications Law and Policy Division (2011, 2007).

Fulbright Specialist Program Registrant (2008-2009)(2021-2023)
see <http://www.cies.org/specialists/ProgramDescription.htm>).

Winner, 1999 Cable Book Award, National Cable Television Center.

Penn State, College of Communications, Alumni Society Excellence in Teaching Award (1995).

Who's Who in America (various years).

Who's Who in American Education (various years).

Who's Who in American Law (various years).

Who's Who in Communications and the Mass Media (various years).

Who's Who in the World (various years).

Membership and Active Participation in Professional and Learned Societies

Appointed International Expert, at the Review College of the Research Foundation – Flanders Belgium (FWO).

Associate Editor, *Telecommunications Policy* (July, 2019-2023); Advisory Editor (July, 2023-present).

Faculty Associate, Berkman Center for Internet and Society at Harvard University (2015-2016).

Fellow, Columbia Institute for Tele-Information, Columbia University, School of Business (2012-present).

Pacific Telecommunications Council, elected to the Advisory Council (2005-2009); Program Committee (numerous years).

Telecommunications Policy Research Conference, Program Committee for the 29th, 30th, 34th, 35th and 36th Annual Conferences.

Fellow, Center for Strategic and International Studies, International Communications Studies Program (1999-2001).

Editorial Board, *Info: the journal of policy regulation and strategy for telecommunications information and media* (1998-present).

Editorial Board, *Telecommunications Policy* (1997-present).

Associate, Program on Information Resources Policy, Harvard University (1992-2011).

American Bar Association; Vice Chair, Communications Committee of the International Law Section (1992-1994).

Member Virginia, Supreme Court and 4th Circuit Court of Appeals Bars.

Courses Taught

Undergraduate

Case Studies in Information, Communications and Entertainment

Analysis of Broadcast-Cable Policy

Digital Literacy (Freshman Seminar)

Emerging Telecommunications and Information Processing Technologies

International Telecommunications and Trade Policy

Internet Law and Policy

Introduction to Broadcast/Cable Management

Law of Mass Communications (Honors and regular)

Media and Democracy

Graduate

Case Studies in Information, Communications and Entertainment

Colloquium

Constitutional Problems of the News Media

International Telecommunications and Trade Policy

Internet Law and Policy (cross-listed as a Penn State Law School course)

Media and Democracy

Telecommunications Law and Regulation (cross-listed as a Penn State Law School course)

International Telecommunications and Space (cross-listed as a Penn State Law and School of International Affairs course)